

## Vaccinating Hens at the Right Time Saves Eggs

a shallow research pond at the Davis lab," says Spencer.

"Studies done by ARS scientists in Florida," he notes, "showed that the relative growth rate of a weevil that eats a water weed called hydrilla increased by 50 percent when the weevil was fed plant material with 3.5 percent nitrogen, as compared to plant material with only 2 percent nitrogen."

Based on those results, differences in nitrogen in Eurasian watermilfoil plants from various sites might also make a difference in how fast the helpful weevils develop—and how effectively they foil these notorious weeds.—By **Marcia Wood**, ARS.

*This research is part of Crop and Commodity Pest Biology, Control, and Quarantine, an ARS National Program described on the World Wide Web at <http://www.nps.ars.usda.gov/programs/304s2.htm>.*

*Lars W.J. Anderson and David F. Spencer are in the USDA-ARS Exotic and Invasive Weed Research Unit, c/o UC Davis, One Shields Ave., Davis, CA 95616; phone (530) 752-6260 [Anderson], (530) 752-1096 [Spencer], fax (530) 752-4604, e-mail [lwanderson@ucdavis.edu](mailto:lwanderson@ucdavis.edu) [dfspencer@ucdavis.edu](mailto:dfspencer@ucdavis.edu).* ♦

BRIAN PRECHTEL (K8239-13)



**Eurasian watermilfoil, *Myriophyllum spicatum*, at flowering stage.**

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**Plant physiologist Lars Anderson checks watermilfoil for shoot production.**

Vaccinating laying hens for a respiratory disease at the right time can save several eggs per hen each year.

Mycoplasmosis, a serious respiratory disease of poultry, is caused by tiny bacteria that infect about 80 percent of all laying hens. Unvaccinated hens average 15 fewer eggs per year.

In 1981, research by USDA's Agricultural Research Service and Animal and Plant Health Inspection Service, the University of Georgia, and a group from the egg industry showed that vaccinating laying hens at about 18 weeks of age with the F strain of *Mycoplasma gallisepticum* controlled the disease.

The problem was that vaccinating hens while they were laying lowered egg production by seven eggs per hen per year. Now, new ARS research shows that the timing of vaccination—before hens begin laying—enables them to maintain full egg production, or about 253 per year.

"The corrected timing amounts to an \$82 million a year increase in production for the U.S. egg industry, which now averages annual sales of about \$3.8 billion," says veterinarian Scott L. Branton. He is in the ARS Poultry Research Unit at Mississippi State, Mississippi.

For their latest research, the ARS scientists used laying hens that did not have the disease. They say that egg producers can now administer the currently available vaccine before the hens begin laying, without worrying about lower production.

Branton and an ARS colleague, physiologist James D. May, are presently working on a new genetically engineered form of the vaccine that could be used to inoculate eggs. It will use a gene from the F strain of the bacteria inserted into a genetically engineered form of the vaccine. The researchers say they are about 8 years away from reaching this goal.

They believe the new vaccine will have another advantage: It will pose no harm to broilers or turkeys. The currently available vaccines have limitations—they can be pathogenic to broilers and turkeys or provide only limited protection from the bacteria.—By **Hank Becker**, ARS.

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*Scott L. Branton and James D. May are in the USDA-ARS Poultry Research Unit, P.O. Box 5357, Mississippi State, MS, 39762; phone (601) 323-2230, fax (601) 323-3535, e-mail [sbranton@ag.gov](mailto:sbranton@ag.gov) [dmay@ag.gov](mailto:dmay@ag.gov).* ♦